

## **1. Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of the claims in the application:

### **Listing of Claims:**

1. (Currently Amended) A method of transmitting and receiving messages in a multi-point, publish/subscribe computer-based system, the system having at least one publisher application and at least one subscriber application in communication over at least one communications path, with each application identified by an identifier, the method comprising:

publishing, using the publisher application, a message of a first type over the communications path, without knowing the address of an intended recipient subscriber application;

receiving the message at at least one subscriber application;

registering, in response to that message, a certified message subscription request, for messages of the first type, for that subscriber application at the publisher application;

issuing notification at the publisher application that the identified subscriber application requested registration; and,

establishing, in response to the certified message subscription request, a certified communications session between the subscriber application and the publisher application in which the publisher application communicates a subsequent message of the first type to at least the subscriber application and monitors whether the subscriber application has received the subsequent message by waiting for an acknowledgement of receipt of the subsequent message from the subscriber application and, if the acknowledgement does not arrive within a defined time, resends the unacknowledged subsequent message to the subscriber application, thereby establishing a certified message delivery session between the publisher application and the subscriber application.

2. (Currently Amended) The method of claim 1, wherein the message type is identified by the message content and the certified message subscription request is for messages of that content.
3. (Currently Amended) The method of claim 2, wherein the subscriber application registers the certified message subscription request.
4. (Previously Presented) The method of claim 3, wherein the message of the first type is published and later received by the subscriber application using a subject based addressing method.
5. (Currently Amended) The method of claim 3, wherein the certified message subscription request identifies the subscriber application's "inbox" address.
6. (Canceled)
7. (Currently Amended) The method of claim 1 wherein the publisher application is unknown to the subscriber application, said method further comprising:
  - the subscriber application requesting registration for certified messaging from the publisher application; and
  - the publisher application thereafter accepting the subscriber application's certified message registration request and registering the subscriber application.
8. (Currently Amended) The method of claim 7, further comprising the publisher application registering the subscriber application for certified messaging by the method comprising:
  - the publisher application registering the subscriber application for certified messaging; and
  - the publisher application notifying the subscriber application of registration.

9. (Previously Presented) The method of claim 1, wherein the publisher application monitors receipt of the subsequent message by:
- including a sequence number in the subsequent message to the subscriber application; and  
deleting the subsequent message from a ledger of messages only when the subscriber application acknowledges receipt of the subsequent message.
10. (Currently Amended) The method of claim 9, wherein the publisher application sends a message to a plurality of subscriber applications registered for certified messaging, and deletes the message from its ledger when all of the subscriber applications have acknowledged receipt.
11. (Previously Presented) The method of claim 1, further comprising distributed queuing of messages to one subscriber application out of n-subscriber applications, wherein
- the publisher application does not need to know the existence of any of the n- subscriber applications;
- the individual ones of said n-subscriber applications indicate their availability to another one of said n-subscriber applications as a scheduler; and
- the scheduler routes messages to subscriber applications having appropriate availability.
12. (Currently Amended) A system for transmitting and receiving messages in a multi-point, publish/subscribe computer-based system, the system comprising:
- at least one publisher application and;
- at least one subscriber application in communication over at least one communications path, wherein the at least one publisher application and the at least one subscriber application are identified by an identifier and the system is configured to:
- publish, using the publisher application, a message of a first type over the communications path, without knowing the address of an intended recipient subscriber application;
- receive the message at least one subscriber application;
- register, in response to that message, a certified message subscription request, for messages of the first type, for that subscriber application at the publisher application;

issue notification at the publisher application that the identified subscriber application requested registration; and,

establish, in response to the certified message subscription request, a certified communications session between the subscriber application and the publisher application in which the publisher application communicates a subsequent message of the first type to at least the subscriber application and monitors whether the subscriber application has received the subsequent message by waiting for an acknowledgement of receipt of the subsequent message from the subscriber application and, if the acknowledgement does not arrive within a defined time, resends the ~~unacknowledged~~ subsequent message to the subscriber application, thereby establishing a certified message delivery session between the publisher application and the subscriber application.

13. (Currently Amended) The system of claim 12, wherein the message type is identified by the message content and the certified message subscription request is for messages of that content.

14. (Currently Amended) The system of claim 13, wherein the ~~subscriber~~ publisher application registers the certified message subscription request.

15. (Previously Presented) The system of claim 14, wherein the message of the first type is published and later received by the subscriber application using a subject based addressing method.

16. (Currently Amended) The system of claim 14, wherein the certified message subscription request identifies the subscriber application's "in box" address.

17. (Canceled)

18. (Currently Amended) The system of claim 12, wherein the publisher application is unknown to the subscriber application, wherein:

the subscriber application requests registration for certified messaging from the publisher application; and

the publisher application thereafter accepts the subscriber application's certified message registration request and registers the subscriber application.

19. (Currently Amended) The system of claim 18, wherein the publisher application registers the subscriber application for certified messaging by:

the publisher application registering the subscriber application for certified messaging; and,

the publisher application notifying the subscriber application of registration.

20. (Previously Presented) The system of claim 12, wherein the publisher application monitors receipt of the subsequent message by:

including a sequence number in the subsequent message to the subscriber application; and,

deleting the subsequent message from a ledger of messages only when the subscriber application acknowledges receipt of the subsequent message.

21. (Currently Amended) The system of claim 20, wherein the publisher application sends a message to a plurality of subscriber applications registered for certified messaging, and deletes the message from its ledger when all of the subscriber applications have acknowledged receipt.

22. (Previously Presented) The system of claim 12, further configured to perform distributed queuing of messages to one subscriber application out of n-subscriber applications, in which:

the publisher application does not need to know the existence of any of the n- subscriber applications;

the individual ones of said n-subscriber applications indicate their availability to another one of said n-subscriber applications as a scheduler; and,

the scheduler routes received messages to subscriber applications having appropriate availability.

23. (Previously Presented) A method of certified delivery of an outgoing message in a multi-point, publish/subscribe computer-based system, the system having at least one publisher application and at least one subscriber application in communication over at least one communications path, with each application identified by an identifier, the method comprising:

establishing a certified delivery session including a certified delivery session name and a certified delivery session ledger;

labeling the outgoing message with a label including the delivery session name and a sequence number;

sending the labeled outgoing message;

receiving the labeled outgoing message at a subscriber application; and,

issuing notification at the publisher application when the subscriber application receives each such message.

24. (Previously Presented) The method of claim 23, wherein the subscriber application is a plurality of n-subscribers and individual one of the n-subscribers is selected by one of said n-subscribers as a scheduler to receive the message.

25. (Previously Presented) The method of claim 24 wherein:

individual ones of said n-subscriber applications indicate their ability to address messages; and

the scheduler routes messages to subscriber applications based on the subscriber application's indicated ability.

26. (Currently Amended) A method of communicating messages in a multi-point, publish/subscribe computer-based system, the method comprising:

registering a certified message subscription request from a subscriber application for messages of a first type at a publisher application;

establishing, in response to the certified message subscription request, a certified communications session between the subscriber application and the publisher application;

communicating a subsequent message of the first type from the publisher application to the subscriber application using the certified communications session; and

monitoring, at the publisher application, whether the subscriber application has received the subsequent message by waiting for an acknowledgement of receipt of the subsequent message from the subscriber application and, if the acknowledgement does not arrive within a defined time, resends the ~~unacknowledged~~ subsequent message to the subscriber application.

27. (Currently Amended) The method of claim 26, wherein the message type is identified by the message content and the certified message subscription request is for messages of that content.
28. (Currently Amended) The method of claim 27, wherein the ~~subscriber~~ publisher application registers the certified message subscription request.
29. (Previously Presented) The method of claim 28, wherein the message of the first type is published and later received by the subscriber application using a subject based addressing method.
30. (Currently Amended) The method of claim 28, wherein the certified message subscription request identifies the subscriber application's "inbox" address.
31. (Canceled)
32. (Currently Amended) The method of claim 26 wherein the publisher application is unknown to the subscriber application, said method further comprising:
  - the subscriber application requesting registration for certified messaging from the publisher application; and
  - the publisher application thereafter accepting the subscriber application's certified message registration request and registering the subscriber application.
33. (Currently Amended) The method of claim 32, further comprising the publisher application registering the subscriber application for certified messaging by the method comprising:

the publisher application registering the subscriber application for certified messaging;  
and

the publisher application notifying the subscriber application of registration.

34. (Previously Presented) The method of claim 26, wherein the publisher application monitors receipt of the subsequent message by:
- including a sequence number in the subsequent message to the subscriber application; and  
deleting the subsequent message from a ledger of messages only when the subscriber application acknowledges receipt of the subsequent message.

35. (Currently Amended) The method of claim 34, wherein the publisher application sends a message to a plurality of subscriber applications registered for certified messaging, and deletes the message from its ledger when all of the subscriber applications have acknowledged receipt.

36. (Previously Presented) The method of claim 26, further comprising distributed queuing of messages to one subscriber application out of n-subscriber applications, wherein
- the publisher application does not need to know the existence of any of the n- subscriber applications;
- the individual ones of said n-subscriber applications indicate their availability to another one of said n-subscriber applications as a scheduler; and
- the scheduler routes messages to subscriber applications having appropriate availability.

37. (Currently Amended) A system for communicating messages in a multi-point, publish/subscribe computer-based system, the system comprising:
- at least one publisher application and;
- at least one subscriber application in communication over at least one communications path, wherein the system is configured to:
- register a certified message subscription request from the subscriber application for messages of a first type at the publisher application;
- establish, in response to the certified message subscription request, a certified communications session between the subscriber application and the publisher application;

communicate a subsequent message of the first type from the publisher application to at least the subscriber application using the certified communications session; and,

monitor, at the publisher application, whether the subscriber application has received the subsequent message by waiting for an acknowledgement of receipt of the subsequent message from the subscriber application and, if the acknowledgement does not arrive within a defined time, resends the ~~unacknowledged~~ subsequent message to the subscriber application.

38. (Currently Amended) The system of claim 37, wherein the message type is identified by the message content and the certified message subscription request is for messages of that content.

39. (Currently Amended) The system of claim 38, wherein the subscriber application registers the certified message subscription request.

40. (Previously Presented) The system of claim 39, wherein the message of the first type is published and later received by the subscriber application using a subject based addressing method.

41. (Currently Amended) The system of claim 39, wherein the certified message subscription request identifies the subscriber application's "in box" address.

42. (Canceled)

43. (Previously Presented) The system of claim 37, wherein the publisher application is unknown to the subscriber application, wherein:

the subscriber application requests registration for certified messaging from the publisher application; and

the publisher application thereafter accepts the subscriber application's certified message registration request and registers the subscriber application.

44. (Currently Amended) The system of claim 43, wherein the publisher application registers the subscriber application for certified messaging by:

the publisher application registering the subscriber application for certified messaging; and,

the publisher application notifying the subscriber application of registration.

45. (Previously Presented) The system of claim 37, wherein the publisher application monitors receipt of the subsequent message by:

including a sequence number in the subsequent message to the subscriber application; and,

deleting the subsequent message from a ledger of messages only when the subscriber application acknowledges receipt of the subsequent message.

46. (Currently Amended) The system of claim 45, wherein the publisher application sends a message to a plurality of subscriber applications registered for certified messaging, and deletes the message from its ledger when all of the subscriber applications have acknowledged receipt.

47. (Previously Presented) The system of claim 37, further configured to perform distributed queuing of messages to one subscriber application out of n-subscriber applications, in which:

the publisher application does not need to know the existence of any of the n- subscriber applications;

the individual ones of said n-subscriber applications indicate their availability to another one of said n-subscriber applications as a scheduler; and,

the scheduler routes received messages to subscriber applications having appropriate availability .

48. (Previously Presented) A method of certified delivery of an outgoing message in a multi-point, publish/subscribe computer-based system, the system having at least one publisher application and at least one subscriber application in communication over at least one communications path, the method comprising:

establishing an applications level certified delivery session between at least one publisher application and at least one subscriber application including a certified delivery session name and a certified delivery session ledger;

labeling the outgoing message with a label including the delivery session name and a sequence number;

sending the labeled outgoing message; and,

receiving the labeled outgoing message at a subscriber application.